FOR OFFICIAL USE ONLY

PIPING

- SANITARY, ABOVE FLOOR (S)
- SANITARY, BELOW FLOOR (S)
- INDUSTRIAL WASTE, BELOW FLOOR (IW)
- CONDENSATE, ABOVE FLOOR (CD)
- VENT (V)
- COLD WATER (CW)
- INDUSTRIAL COLD WATER (ICW)
- HOT WATER (HW)
- HOT WATER RETURN (HWR)
- COMPRESSED AIR (CA)
- STORM DRAIN (SD)
- OVERFLOW STORM DRAIN (OSD)

PLUMBING

- BELL-UP DRAIN OR FUNNEL RECEPTOR W/ TRAP
- FLOOR DRAIN W/ P-TRAP
- CLEANOUT (WALL) — WCO
- CLEANOUT (FLOOR) — FCO
- WATER HAMMER ARRESTOR
- EMERGENCY EYEWASH
- MIXING VALVE
- CLEANOUT (FLOOR) — FCO
- CLEANOUT (PIPE) — CO
- FLOOR SINK W/P-TRAP
- VENT THROUGH ROOF (VTR)
- FLOW LINE WITH DIRECTION OF FLOW
- WATER METER — M

ANNOTATION

- XXX-XXX — PIPE SUPPORT TAG
- XXXX — HEMP PENETRATION
- -90012001 — EQUIPMENT CALLOUT

VALVES

- GATE VALVE
- PLUG VALVE
- PLUG VALVE, 3-WAY
- GLOBE VALVE
- GLOBE VALVE, 3-WAY
- CHECK VALVE
- BALL VALVE
- BALL VALVE, 3-WAY
- BALL VALVE, WITH VENT
- BUTTERFLY VALVE
- NEEDLE VALVE
- PET COCK
- ANGLE VALVE
- 3-WAY VALVE
- FOOT VALVE
- BALANCING VALVE
- CALIBRATED BALANCING VALVE
- ANGLE RELIEF VALVE; SAFETY RELIEF VALVE — SP
- RELIEF VALVE WITH FLAME ARRESTOR COMBINATION
- TRIPLE DUTY VALVE
- PRESSURE REDUCING VALVE
- BACKFLOW PREVENTER

PIPE FITTINGS

- PIPE CAP OR ENDCAP BLIND FLANGE
- CAP
- REDUCER
- SLEEVE
- TEST PLUG — TP
- UNION
- P-TRAP
- VENT THROUGH ROOF (VTR)
- ELBOW UP
- ELBOW DOWN
- TEE UP
- TEE DOWN

ABBREVIATIONS

@	AT
ABV	ABOVE
AFF	ABOVE FINISH FLOOR
AP	ACCESS PANEL
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AVTR	ACID VENT THROUGH ROOF
BEL	BELOW
BFF	BELOW FINISH FLOOR
BFP	BACKFLOW PREVENTER
BTU	BRITISH THERMAL UNITS
BTUH	BRITISH THERMAL UNITS PER HOUR
CD	CONSTRUCTION DOCUMENTS
CFC	CALIFORNIA FIRE CODE, CURRENT EDITION
CLG	CEILING
CO	CLEANOUT
CONT	CONTINUATION
COTG	CLEANOUT TO GRADE
CU FT	CUBIC FEET
DFU	DRAINAGE FIXTURE UNIT
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
(E)	EXISTING TO REMAIN
EL	ELEVATION
°F	DEGREES FAHRENHEIT
FCO	FLOOR CLEANOUT
FF	FINISH FLOOR
FFE	FINISH FLOOR ELEVATION
FT	FOOT / FEET
GAL	GALLON / GALLONS
GCO	GRADE CLEAN OUT
GPF	GALLONS PER FLUSH
GPH	GALLONS PER HOUR
GPM	GALLON PER MINUTE
HB	HOSE BIBB
HDR	HEADER
HP	HORSEPOWER
HTR	HEAT TRACING RETURN
HTS	HEAT TRACING SUPPLY
HW	HOT WATER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
OD	OVERFLOW DRAIN
OSD	OVERFLOW STORM DRAIN
RPBFD	REDUCED PRESSURE BACKFLOW DEVICE
RWL	RAINWATER LEADER
SD	STORM DRAIN
SOV	SHUT OFF VALVE
TDH	TOTAL DYNAMIC HEAD
THRU	THROUGH
TP	TRAP PRIMER
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
V	VOLT
VAC	VOLTS AC
VB	VACUUM BREAKER
VTR	SANITARY VENT THRU ROOF
W	WEST
W/	WITH
W/O	WITHOUT
WBC	WAVEGUIDE BELOW CUT-OFF
WC	WATER COLUMN
WCO	WALL CLEANOUT
WM	WATER METER
WT	WEIGHT
WSFU	WATER SUPPLY FIXTURE UNIT
WWS	WELL WATER SUPPLY
YB	YARD BOX

GENERAL NOTES

1. THIS ENTIRE PLUMBING DRAWING SET SHALL CONFORM TO THE DEPARTMENT OF DEFENSE UNIFIED FACILITIES CRITERIA (UFC) CODE AND STANDARDS AS ADOPTED AND AMENDED BY THE AUTHORITY HAVING JURISDICTION. NOTHING IN THESE DRAWINGS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES AND STANDARDS.
2. ALL SERVICE WATER HEATING EQUIPMENT TO BE IN COMPLIANCE WITH THE MODEL ENERGY CODE REQUIREMENTS AND LABELED.
3. ALL HOT WATER, HOT WATER RETURN, COLD WATER AND CONDENSATE PIPING TO BE INSULATED PER THE SPECIFICATIONS SECTION 23 07 00.
4. TEST SYSTEM(S) IN ACCORDANCE WITH REQUIREMENTS OF THE GOVERNING AUTHORITIES.
5. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH AND BE CONSIDERED TO BE A PART OF SEPARATE AND COMPLETE PLUMBING SPECIFICATION. REFER TO PLUMBING SPECIFICATIONS FOR ADDITIONAL INFORMATION.
6. THESE DRAWINGS DO NOT INCLUDE ALL NECESSARY SAFETY REQUIREMENTS. CONTRACTOR TO COMPLY TO SAFETY REQUIREMENTS SET FORTH BY THE LOCAL AUTHORITIES HAVING JURISDICTION. INCLUDE WORK OR EQUIPMENT NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER INSTALLATION AND SAFETY OPERATION OF THE SYSTEM.
7. DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE OF WORK AND TO INDICATE GENERAL ARRANGEMENT. THEY ARE NOT INTENDED TO SHOW EVERY DETAIL INCLUDING OFFSET OR FITTING OR EVERY STRUCTURAL DIFFICULTY THAT MAY BE ENCOUNTERED DURING THE WORK. EXCEPT AS OTHERWISE INDICATED, REASONABLE MODIFICATION IN LAYOUT IS ALLOWED TO FIT FIELD CONDITION AND AVOID CONFLICT WITH OTHER TRADE; HOWEVER, ANY DEVIATIONS FROM THE DRAWINGS OR SPECIFICATIONS SHALL NOT ALTER AESTHETICS OF THE BUILDING ARCHITECTURAL DESIGN INTERNALLY AND EXTERNALLY; AND SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION.
8. ALL OUTLETS FOR FUTURE CONNECTIONS SHALL BE INSTALLED SO AS TO PERMIT EASY CONNECTION. COORDINATE WITH DUCTWORK, PIPING LOCATED BOTH ABOVE CEILING AND UNDER THE RAISED FLOOR, STRUCTURAL CONDITIONS AND ARCHITECTURAL LAYOUT. ALL PLUGGED/CAPPED WASTE AND VENT OUTLETS FOR FUTURE CONNECTIONS SHALL BE INSTALLED AS LOW AS POSSIBLE IN CEILING SPACES.
9. ALL CONNECTIONS TO EXISTING SERVICES SHALL BE MADE SUCH THAT INTERRUPTION TIME WILL BE AS SHORT AS POSSIBLE. THE CONTRACTOR SHALL GIVE THE OWNER'S REPRESENTATIVE SUFFICIENT NOTICE OF SUCH INTERRUPTION AND THE ACTUAL SHUT-DOWN TIME SHALL BE AT A TIME DESIGNATED BY THE OWNER'S REPRESENTATIVE.
10. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN ON THESE DRAWINGS AND SPECIFICATIONS WITH ALL DISCIPLINES AND TRADES PRIOR TO SUBMITTAL OF BID AND INSTALLATION OF SYSTEM. VERIFY ALL SLEEVE THROUGH BEAMS AND FOOTINGS, SIZES AND ELEVATION REQUIREMENTS. VERIFY EXACT LOCATION, ROUGH-IN, POINTS OF CONNECTION, AND INVERT ELEVATIONS OF UTILITY SERVICE PIPING BEFORE TRENCHING OR INSTALLATION.
11. THE CONTRACTOR SHALL COORDINATE ALL PIPE PENETRATION THROUGH WALLS AND FLOORS PRIOR TO WALL CONSTRUCTION. AT ALL FIRE RATED-WALL AND FLOOR-PENETRATION LOCATIONS PROVIDE: A) FIRE SEALANT, ESCUTCHEON AND NON-COMBUSTION INSULATION OF PIPING AT PER LOCAL CODE REQUIREMENT B) FIRE STOPPING USING HILTI FIRE STOP OR APPROVED EQUAL UL LISTED SYSTEM FOR CONCRETE OR BLOCK WALL/FLOOR PENETRATION, USE CAJ 1140, CAJ 8041 AND/OR CAJ 5091
12. CONCEAL ALL PIPING IN WALL FURRING, PARTITIONS, ETC.. PIPING IN MECHANICAL ROOM MAY BE INSTALLED EXPOSED.
13. CONTRACTOR SHALL COORDINATE AND VERIFY EXACT LOCATION, ROUGH-IN, POINTS OF CONNECTION, AND INVERT ELEVATIONS OF UTILITY SERVICE PIPING BEFORE TRENCHING OR INSTALLATION.
14. ALL NEW OR REPAIRED DOMESTIC HOT AND COLD WATER SYSTEM SHALL BE DISINFECTED BY WATER CHLORINIZATION PRIOR TO USE. THE METHOD SHALL BE PRESCRIBED BY THE HEALTH AUTHORITY. BACTERIOLOGICAL TESTING SHALL BE PERFORMED BY INDEPENDENT THIRD PARTY TESTING LABORATORY.
15. ALL PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE UFGS GUIDELINES AND SHALL BE BRACED TO RESIST THE FORCES DESCRIBED IN ASCE 7-05 SECTION 13.3 AS DEFINED IN ASCE 7-05 SECTION 13.6.8, 13.6.7, AND 13.6.5.5, ITEM 6 RESPECTIVELY. A COPY OF THE PUBLISHED GUIDELINES BY UFGS AND ASCE SHALL BE PROVIDED BY THE CONTRACTOR AND KEPT ON THE JOB AT ALL TIMES
16. ALL PIPING SHALL BE SUPPORTED UTILIZING ACOUSTO-PLUMBING SUPPORTS SYSTEM (CLEVIS OR SPLIT RING TYPE PIPE HANGERS) OR EQUAL. "PLUMBERS TAPE" IS NOT PERMITTED.
17. REFER TO PLUMBING SPECIFICATIONS FOR ADDITIONAL CONSTRUCTION INFORMATION.
18. INSTALL PIPING TO PROVIDE THE MAXIMUM POSSIBLE CLEAR HEIGHT UNDERNEATH TO PROVIDE CLEARANCE FOR CEILING FIXTURES.
19. ALL HORIZONTAL PIPING LINES EXTENDED AND CONNECTED TO EQUIPMENT SHALL BE RUN AT THE HIGHEST POSSIBLE ELEVATIONS AND NOT LESS THAN 6" ABOVE THE FLOOR TO PROVIDE CLEARANCE FOR CLEANING. AT WALL OR COLUMN LOCATIONS, PIPING ROUGH-IN SHALL BE STUBBED IN WALLS WHENEVER POSSIBLE.
20. ALL PLUMBING FIXTURE LOCATIONS (WATER CLOSETS, LAVATORIES, FLOOR DRAINS, SINK ETC.) ARE DIAGRAMMATIC AND CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS, MOUNTING HEIGHTS AND COLOR.
21. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR THE EXACT LOCATION OF ALL CEILING MOUNTED DEVICES.
22. REFER TO ARCHITECTURAL INTERIOR ELEVATION DRAWINGS, WHERE THE ARCHITECT HAS DRAWN SUCH ELEVATIONS, FOR THE LOCATIONS OF ALL WALL MOUNTED DEVICES.
23. TRAP PRIMERS FOR FLOOR DRAINS AND FLOOR SINKS AND WATER HAMMER ARRESTORS TO BE INSTALLED AS PER THE LATEST EDITION OF THE AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE 1010) SIZING AND INSTALLATION REQUIREMENTS.
24. ALL PIPING DISCHARGING INTO FLOOR-SINKS AND/OR FLOOR-DRAINS TO HAVE A MINIMUM AIR-GAP AS REQUIRED BY LOCAL CODES.
25. ALL CLEANOUTS SHALL BE INSTALLED WHERE READILY ACCESSIBLE AND SHALL BE COORDINATED WITH ALL CLEANOUT LOCATIONS WITH EQUIPMENT, CABINETS, ETC., AND THE ARCHITECT PRIOR TO ANY INSTALLATION.
26. ALL CONCEALED VALVES, COCKS, WATER HAMMER ARRESTORS, PLUMBING EQUIPMENT, CONTROLS AND OTHER DEVICES REQUIRING PERIODIC ADJUSTMENT, INSPECTION, OR MAINTENANCE SHALL BE LOCATED TO BE READILY ACCESSIBLE. WHERE VALVES ARE INSTALLED WITHIN OR BEHIND WALLS, PARTITIONS OR CEILING, AN ACCESS PANEL SHALL BE INSTALLED. SUBMIT SHOP DRAWINGS TO ARCHITECT LOCATING ALL ACCESS PANELS PRIOR TO INSTALLATION OF PIPING.
27. ALL VALVES, UNIONS, ETC. TO BE SAME SIZE AS LINE SIZE UNLESS OTHERWISE NOTED ON DRAWINGS.
28. UNIONS SHALL BE PROVIDED AND INSTALLED AFTER EACH SCREW-TYPE VALVE AND PRIOR TO EQUIPMENT CONNECTIONS.
29. CONTRACTOR SHALL ENSURE THAT ALL NEW AND EXISTING (IN THE PROJECT AREA) PIPING SHALL BE CLEANED PRIOR TO PLACE INTO SERVICE.
30. NO POLYBUTYLENE PIPING IS ALLOWED ON THE PROJECT.
31. EACH VENT SHALL RISE VERTICALLY TO A POINT NOT LESS THAN SIX (6) INCHES IN HEIGHT ABOVE THE FLOOD LEVEL RIM ON THE FIXTURE IT SERVES BEFORE CONNECTING TO ANY OTHER VENT.
32. ALL HORIZONTAL 2" OR SMALLER WASTE AND SEWER LINES SHALL BE ROUTED AT A MINIMUM SLOPE OF 1/4" PER FOOT. IF LESS THAN 2%, APPROVAL MUST BE OBTAINED FROM BUILDING OFFICIAL OR AUTHORITY HAVIN JURISDICTION PRIOR TO INSTALLATION.
33. ALL HORIZONTAL 3" OR LARGER WASTE AND SEWER LINES SHALL BE ROUTED AT A MINIMUM SLOPE OF 1/8" P FOOT, UON.
34. ALL HORIZONTAL CONDENSATE LINES SHALL BE ROUTED AT A MINIMUM SLOPE OF 1/8" PER FOOT.
35. ALL HORIZONTAL STORM DRAIN LINES SHALL BE ROUTED AT A MINIMUM SLOPE OF 1/8" PER FOOT.
36. THE SHORT CIRCUIT RATING OF ELECTRICAL EQUIPMENT AND/OR DEVICES THAT IS FED FROM A BRANCH CIRCUIT OF PANELBOARDS OR MOTOR CONTROL CENTERS SHALL HAVE A SHORT CIRCUIT RATING EQUAL TO OR LARGER THAN THE SHORT CIRCUIT RATING OF ITS UPSTREAM PANELBOARDS OR MOTOR CONTROL CENTERS.

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STATE OF ALASKA — 49 TH — BRADLEY E. BARBO — ME 11573 — 11-18-16 — REGISTERED PROFESSIONAL ENGINEER

RTA

ALL DIMENSIONS AND/OR DIMENSIONS SHOWN IN CALLOUTS/NOTES ARE INCHES UNLESS OTHERWISE NOTED

NOT FOR CONSTRUCTION

US Army Corps of Engineers ®
Alaska District

CONTRACT NO. _____ CONTRACTOR _____ CITY _____ STATE _____

Recommended: _____ PRIME CONTRACTOR
Approved: _____ RESIDENT ENGINEER
Date: _____

No.	Action	By	Date
A1	ASM07 AMENDMENT #07	BTN	2017.03.06
A2	ASM04 AMENDMENT #04	BTN	2016.12.22
0	READY TO ADVERTISE SUBMITTAL	BTN	2016.11.18

Date: 2016.11.18
Dwg Scale: AS NOTED
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Designed: K.MAYOR
Drawn: K.MAYOR
Reviewed: P.WU
Submitted: BTN

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

AECOM + TETRA TECH JV

W911KB-17-R-0010
MDA656

CLEAR AFS, ALASKA
LONG RANGE DISCRIMINATION RADAR
CONSTRUCTION PACKAGE 1 - VOLUME 2
PLUMBING LEGEND, ABBREVIATIONS AND NOTES

Reference number:
P-900001B

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